

Utah Diabetes Practice Recommendations

Diabetes in Pregnancy

Section 2 in a series of topics included in the
Utah Diabetes Practice Recommendations
Updated – April 2009



www.health.utah.gov/diabetes

Table of Contents - Section 2 Diabetes in Pregnancy

Endorsements	2
Gestational Diabetes	
Gestational Diabetes Screening, Testing, Treatment	3
GDM Screening and Initial Management Protocol	5
Insulin Algorithm	6
Glyburide Algorithm.....	7
Pregnancy with Pre-Existing Type 1 and Type 2 Diabetes	
Pre-Existing Diabetes in Pregnancy	8
Pre-Existing Diabetes Management and Monitoring Algorithm.....	10
Informed Consent Forms (English and Spanish)	
Glargine (Lantus)	11
Glyburide	12
Approved Diabetes Education Programs	
Directory of Diabetes Education Programs by Area	13
Bibliography	16

© 2009 Utah Diabetes Prevention and Control Program – All materials in this document may be reproduced with the suggested acknowledgement: Developed by the Utah Diabetes Prevention and Control Program, Utah Department of Health.

This document was produced under Cooperative Agreement #1U58DP001993-01, Collaborative Chronic Disease, Health Promotion, and Surveillance Program. The contents of this document are solely the responsibility of the Utah DPCP and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

Endorsements

The following professional associations and groups have reviewed the Diabetes In Pregnancy section of the Utah Diabetes Practice Recommendations that apply to their respective clinical areas of interest. They have endorsed these Recommendations to the extent they apply to their clinical areas, and found them to be consistent with applicable standards of care for women with diabetes in pregnancy. In extending their endorsement, it is recognized that these Recommendations, while outlining a general course of action for the majority of patients, do not substitute for informed clinical judgment on the exact course of treatment for individual patients.

American College of Physicians, Utah Chapter
American College of Obstetrics and Gynecology, Utah Section
American College of Nurse Midwives, Region 5, Chapter 5
Association of Diabetes Educators in Utah
University of Utah Department of Obstetrics and Gynecology
Utah Academy of Family Practice
Utah Dietetic Association
Utah Nurse Practitioners
Utah Ophthalmology Society
Utah Pharmacists Association

UDPR - Diabetes in Pregnancy 2009 Committee Members

Robert E. Jones, MD, Committee Chairman
Darin Larson, BS, CHES
D. Ware Branch MD -Obstetrics and Gynecology
Michael Varner MD - Obstetrics and Gynecology

GESTATIONAL DIABETES

Introduction

Gestational diabetes (GDM) is one of the most common complications of pregnancy in the U.S. It is anticipated that the rate of GDM will continue to rise in proportion to the increasing rates of overweight/obesity and type 2 diabetes mellitus (DM) within the population. In Utah, the rate of GDM has risen steadily over the past decade and currently affects 2.3% of all pregnancies (Utah Department of Health Report). Women with GDM are more likely to develop hypertensive disorders during pregnancy, undergo Cesarean delivery, and have a several-fold higher risk of developing type 2 DM later in life. Offspring of women with GDM are more likely to be macrosomic, have obstetrical complications, develop hyperbilirubinemia, and have increased risk for type 2 DM and metabolic syndrome later in life. Appropriate management of GDM reduces the obstetrical risks for both the mother and baby.

Screening for Gestational Diabetes

The majority of experts and obstetrical groups employ universal screening of pregnant women for gestational diabetes. Universal screening is, however, not without controversy, and some organizations have recommended that only high-risk women with traditional risk factors for type 2 diabetes be screened. Given the increasing prevalence of both diabetes and GDM within the Utah population, the Diabetes In Pregnancy Committee recommends that all pregnant women be screened for GDM unless it is clearly not warranted based upon the practitioner's clinical judgment.

Screening Test

Between 24 and 28 weeks of gestation, women should receive a 50 gram 1 hour oral glucose challenge using a glucose solution (not jelly beans or other forms of glucose). This test may be performed without regard to prandial state. Due to the inherent imprecision of capillary glucose testing, glucose should be measured in the laboratory using venous blood. Using a threshold of >140 mg/dL for further diagnostic testing has a sensitivity of about 80%, while using a threshold of >130 mg/dL increases the sensitivity to nearly 100%. (See algorithm on page 5)

Low-risk women must meet all of the following criteria:

1. Age <25 years
2. Not a member of a high-risk ethnic population
3. Pre-conception BMI <25 kg/m²
4. No prior history of abnormal glucose tolerance
5. No prior history of obstetrical complications associated with GDM
6. No family history of diabetes in a first degree relative

Diagnostic Criteria for Gestational Diabetes

If the screening test is abnormal (i.e. ≥ 140 mg/dL), a three-hour, 100 gram glucose tolerance test should be performed. This test should be administered in the morning after an 8-14 hour fast. The patient should not smoke before or during the test and should remain seated for the duration of the test. Prior to testing, the patient should be encouraged to follow an unrestricted carbohydrate diet (>150 grams of carbohydrate per day for 3 days) in order to avoid a false positive test.

The diagnostic criteria for GDM are shown in the adjacent table.

The American Diabetes Association (ADA) and the American College of Obstetricians and Gynecologists (ACOG) have stipulated that a positive diagnostic test requires two or more thresholds to be exceeded. However, both organizations agree that patients with a single abnormal value during the 3-hour test have an increased risk for a macrosomic infant, and if retested on a different day, up to 30% of these women would exceed at least two of the four thresholds.

Diagnostic Criteria for GDM*

Fasting	95 mg/dL
1 hour	180 mg/dL
2 hour	155 mg/dL
3 hour	140 mg/dL

*Two values exceeding any of the four timed plasma glucose reference values are diagnostic

Treatment of Gestational Diabetes

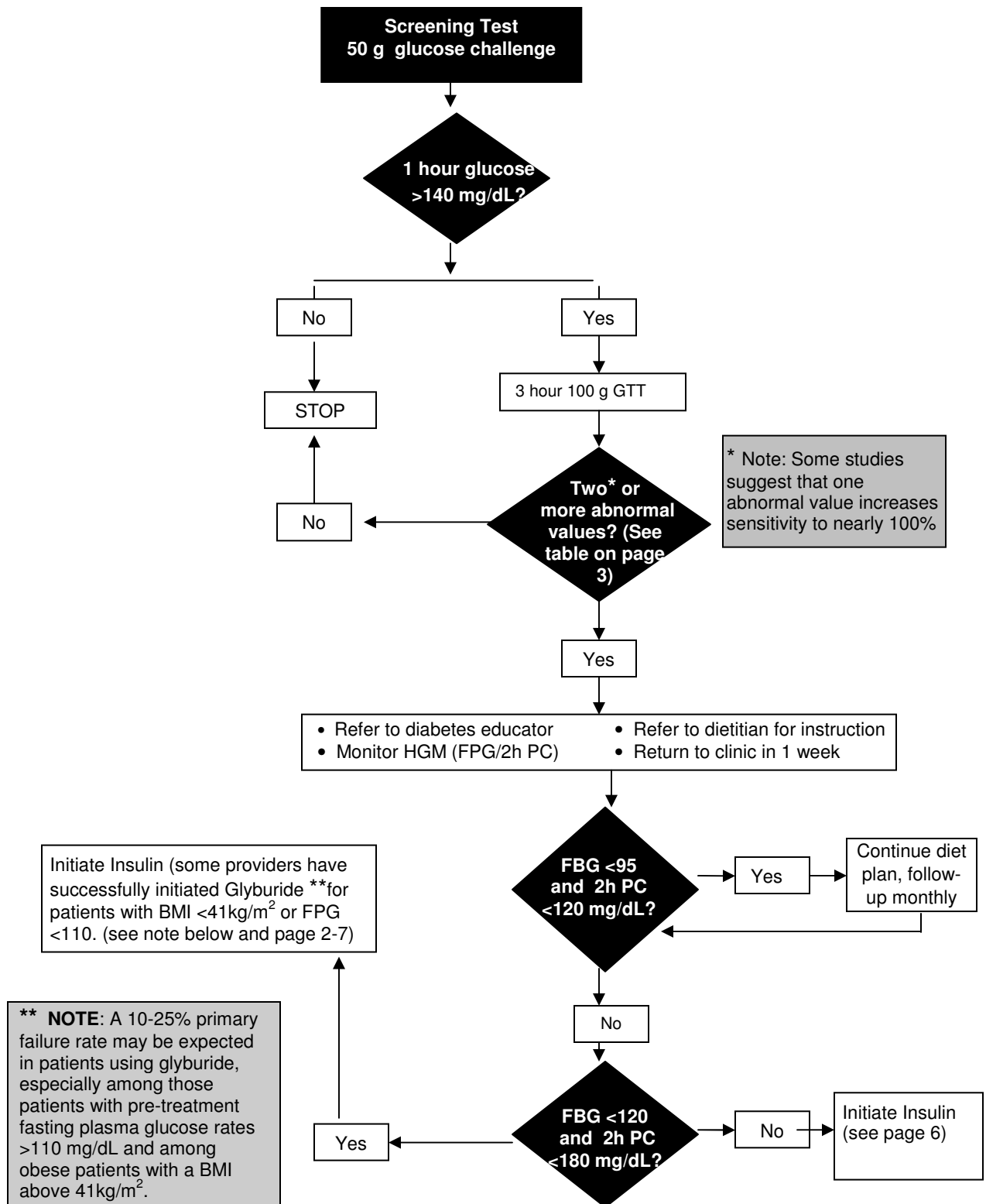
The management of GDM is summarized in the algorithms on the following pages. Several points concerning these algorithms must be emphasized:

- The best accepted treatment for GDM in women who fail dietary management is insulin, usually given as intermediate acting (NPH) and short acting (regular) insulins.
- The use of insulin glargine (Lantus®), glyburide, and metformin in pregnancy is clearly off-label. Due to the lack of long-term information on safety, physicians may want to obtain patient consent prior to initiating therapy with either agent, (see pages 11 and 12 for suggested patient consent forms)
- Regarding glyburide:
 - Glyburide is widely used in the U.S. as an initial treatment for GDM in women who fail dietary control.
 - There are adequate data documenting the lack of transplacental transfer of glyburide (in contrast to other sulfonylureas). Other sulfonylureas are not recommended.
 - Glyburide should not be used prior to 11 weeks gestation.
 - A modest proportion of women initially treated with glyburide will fail to achieve or maintain adequate glycemic control and thus will require insulin. This is particularly true among women pre-treatment high fasting plasma glucose rates (>110 mg/dL) patients.
 - If insulin is required in a woman previously treated with glyburide, the Committee recommends discontinuing the glyburide when insulin is started to avoid severe hypoglycemic episodes.
- Regarding metformin (Glucophage®)
 - Metformin is increasingly being used as an initial treatment for GDM in women who fail dietary control
 - Some experts recommend that if metformin was used prior to pregnancy in a woman with polycystic ovary syndrome (PCOS), it may be continued during pregnancy in order to lessen the risk of developing GDM.
 - A modest proportion of women initially treated with metformin will fail to achieve or maintain adequate glycemic control and thus will require insulin. Insulin may be cautiously initiated and continued while the patient is maintained on their current metformin dose.

Postpartum Evaluation

Approximately 15% of women with GDM will continue to experience glucose intolerance or exhibit overt diabetes in the non-pregnant state. The American Diabetes Association recommends screening with a fasting plasma glucose (FPG) 6-8 weeks postpartum or administration of a 75g 2-hour oral glucose tolerance test if additional evaluation is clinically warranted (see UDPR Section 1 for the diagnostic criteria in non-pregnant adults). Women who are diagnosed with GDM early in pregnancy, who are obese, and those who required oral agents or insulin therapy are more likely to experience continued glucose intolerance or diabetes. It is unlikely that patients who have remained normal during the first 6 weeks postpartum will have an abnormal GTT. However, even for patients who return to a normal glycemic state, evaluation at least every 3 years is recommended. If the patient continues to have glucose intolerance or impaired fasting glucose without diabetes, she should receive intensive medical nutrition therapy with a registered dietitian and be placed on an individualized exercise program. All patients who have had GDM should be encouraged to exercise and lose weight if they are overweight to reduce their very high risk of developing type 2 DM, and should be followed up at least annually. Before the next pregnancy they should be re-evaluated and treated if necessary to decrease the risk of fetal malformations.

GESTATIONAL DIABETES SCREENING AND INITIAL MANAGEMENT PROTOCOL



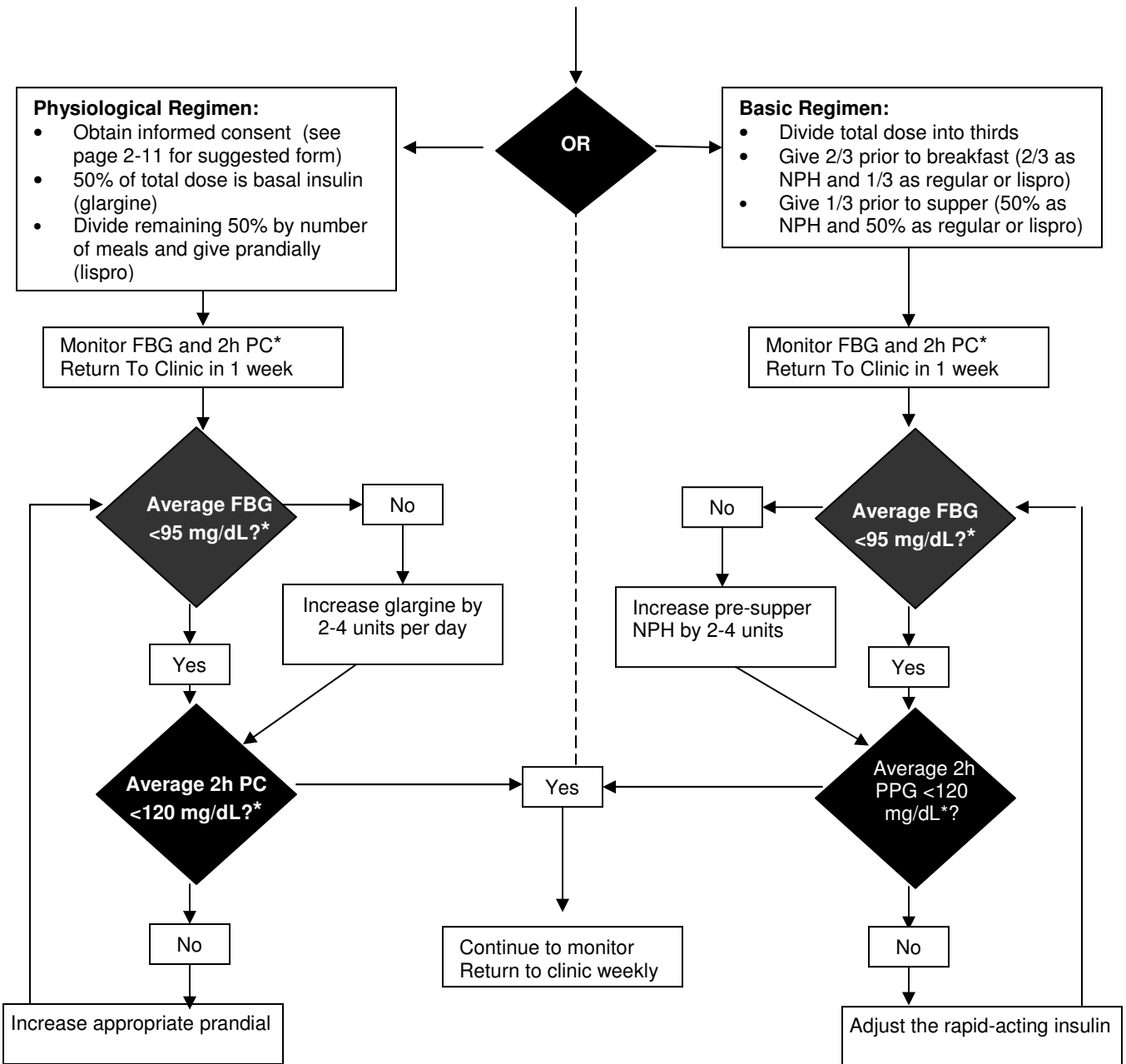
INSULIN ALGORITHM FOR GESTATIONAL DIABETES

(Inclusion of glargine in this algorithm does not imply endorsement by the committee)

Initiate insulin

- 1st trimester: 0.7 U/kg
- 2nd trimester: 0.7-0.8 U/kg
- 3rd trimester: 0.9 U/kg

Refer patient for diabetes education and medical nutrition therapy (see page 2-13)
Teach patient to self-monitor blood glucose and instruct on self-treatment of hypoglycemia

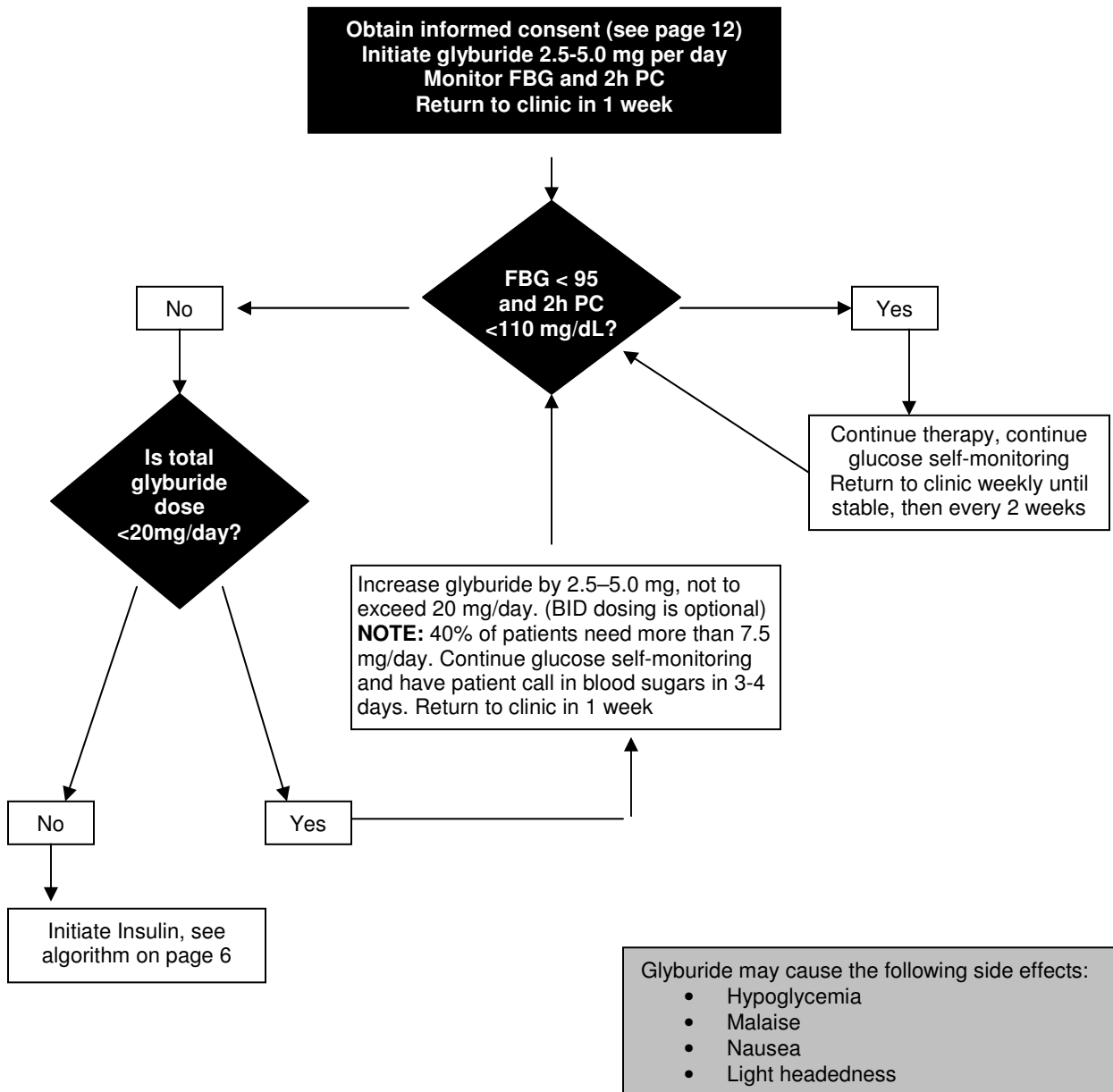


*With recurring hypoglycemia, reduce the dose of the corresponding insulin by 2-4 units

GLYBURIDE ALGORITHM FOR GESTATIONAL DIABETES

(Inclusion of this algorithm does not imply endorsement by the committee)

NOTE: Glyburide has been used by some practitioners for pre-selected patients with FPG <110 mg/dL and BMI <41kg/m². Current glyburide therapy data are from limited studies. Other sulfonylureas are not recommended.



PRE-EXISTING TYPE 1 AND TYPE 2 DIABETES

Preconception Counseling

Women with pre-existing type 1 and type 2 DM are at increased risk to have a fetus with major malformations. Experts believe that the increased risk is largely due to teratogenicity of poor metabolic control in early pregnancy during organogenesis. The level of glycated hemoglobin (A1C) during organogenesis is closely correlated with the risk of malformations. A1C of 8.5% or less has been linked to a malformation rate of 3.4%, while a A1C over 9.5% is associated with a malformation rate of over 20%. Increased rates of spontaneous abortion have also been linked to poor preconception and early conception control. Both spontaneous abortion and major fetal anomalies can be reduced through good preconception and early pregnancy metabolic control. Thus, women with an A1C >7% who are planning pregnancy, should be referred for diabetes education from a certified or recognized diabetes self-management education program (see pages 13, 14)

Preconception counseling should focus on achieving optimal glucose control, as low as possible without undue hypoglycemia. Ideally, glucose levels should be stabilized and the A1C reduced to no more than 1% above the upper limits of normal. Because of adverse fetal effects, ACE-inhibitors should be discontinued and patients on oral hypoglycemic agents should be switched to insulin.

Women with re-existing DM should be evaluated for underlying microvasculopathy, retinal, renal, or cardiac. Ideally, this should be done prior to pregnancy; at the latest, it should be done in early pregnancy. The presence of vasculopathy indicates an increased risk for preeclampsia, placental insufficiency, and the need for iatrogenic preterm birth.

Retinopathy

All women with pre-existing DM presenting for prenatal care should have had a retinal examination performed within the past year, and active proliferative retinopathy should be controlled prior to pregnancy with laser therapy. The transition to tight glycemic control during pregnancy has been associated with short-term progression of retinopathy, and retinopathy is more likely to occur or progress in hypertensive patients. Thus, pregnant diabetics with active retinopathy or those without a retinal examination within the past year should be referred for screening retinal exams at their first prenatal visit. Follow-up exams both during and after pregnancy are strongly encouraged if retinopathy is present. (See page 23 in Section 1-Diabetes Management for Adults)

Renal disease

Pregnancies complicated by nephropathy are at increased risk for maternal and fetal morbidity and perinatal mortality, mostly due to an increased risk of maternal gestational hypertension, preeclampsia, placental insufficiency, and the need for iatrogenic preterm birth. Decreased creatinine clearance and proteinuria before or early in pregnancy are measures of renal dysfunction and predict less salutary perinatal outcomes. Thus, women with a history of microalbuminuria, hypertension, or those with diabetes of ten or more years' duration should be screened with a 24-hour urine collection for total protein and creatinine before pregnancy or at the initial prenatal visit. Women with nephropathy should have serum electrolytes, BUN, and creatinine determined in the first or early second trimester. Women with moderate-to-severe renal insufficiency, i.e., serum creatinine >1.5 mg/dL or creatinine clearance 60 mL/min) should be counseled that pregnancy may induce a permanent deterioration of renal function. In less severe cases of nephropathy, renal function may deteriorate transiently during pregnancy.

Coronary Artery Disease

Women with type 1 or type 2 DM are at increased risk for coronary artery disease. The hemodynamic changes associated with pregnancy increase myocardial stress. Women with long-standing disease and those with hypertension and nephropathy are at especially high risk. Epinephrine released in response to hypoglycemia may exacerbate the risk for myocardial injury. Known coronary artery disease is a relative contraindication to pregnancy. Women with this condition should undergo preconception counseling and be informed of the risks before attempting pregnancy. Referral for a cardiology consult is recommended and baseline studies, including an electrocardiogram and echocardiography should be considered.

Other Maternal Complications

Peripheral and autonomic diabetic neuropathy have not been well studied in pregnancy. Nausea and vomiting commonly seen during pregnancy might be exacerbated in patients with gastroparesis, and severe nausea and vomiting of pregnancy in a woman with DM should prompt gastrointestinal evaluation. Peripheral neuropathy should be assessed at the preconception visit or early in gestation by a careful examination of the patient's extremities for sensory loss (see page 21 in Section 1-Diabetes Management for Adults). Instruction on foot care should be provided for all women with diabetes.

Diabetes Management During Pregnancy

The management of pre-existing DM in pregnancy includes a combination of appropriate diet, exercise, and insulin. During pregnancy, caloric requirements are increased about 300 kcal per day above basal needs. Within this context, carbohydrate counting is an extremely useful practice.

Caloric intake should be managed for appropriate weight gain during pregnancy, with special attention given to avoid weight loss or excessive weight gain. For women of normal body weight, total caloric intake is usually 30 kcal/kg/day with an increase to 35 kcal/kg/day in women less than 90% of desirable body weight and 25 kcal/kg/day in those over 120% of desirable body weight. Medical nutrition therapy with a registered dietitian is strongly recommended.

Insulin is the pharmacological mainstay of glycemic control in all type 1 diabetics and many type 2 diabetics when they become pregnant. Women with type 2 DM who are taking metformin may remain on this drug during pregnancy, though discontinuation of metformin and initiation of insulin is a reasonable option. Practitioners should recognize that insulin dose requirements may actually decrease in the first trimester. However, insulin requirements generally increase as the pregnancy progresses, particularly after 20-24 weeks. Maintaining glucose levels as close to normal as possible is the goal of therapy. Urine or plasma ketones should be measured if glucose levels are repeatedly elevated (>200 mg/dL), and if positive, the results must be immediately reported to the provider. The values in the table below are targets for fasting and postprandial self-monitoring for capillary blood meters. The target for A1C is < 7.0%.

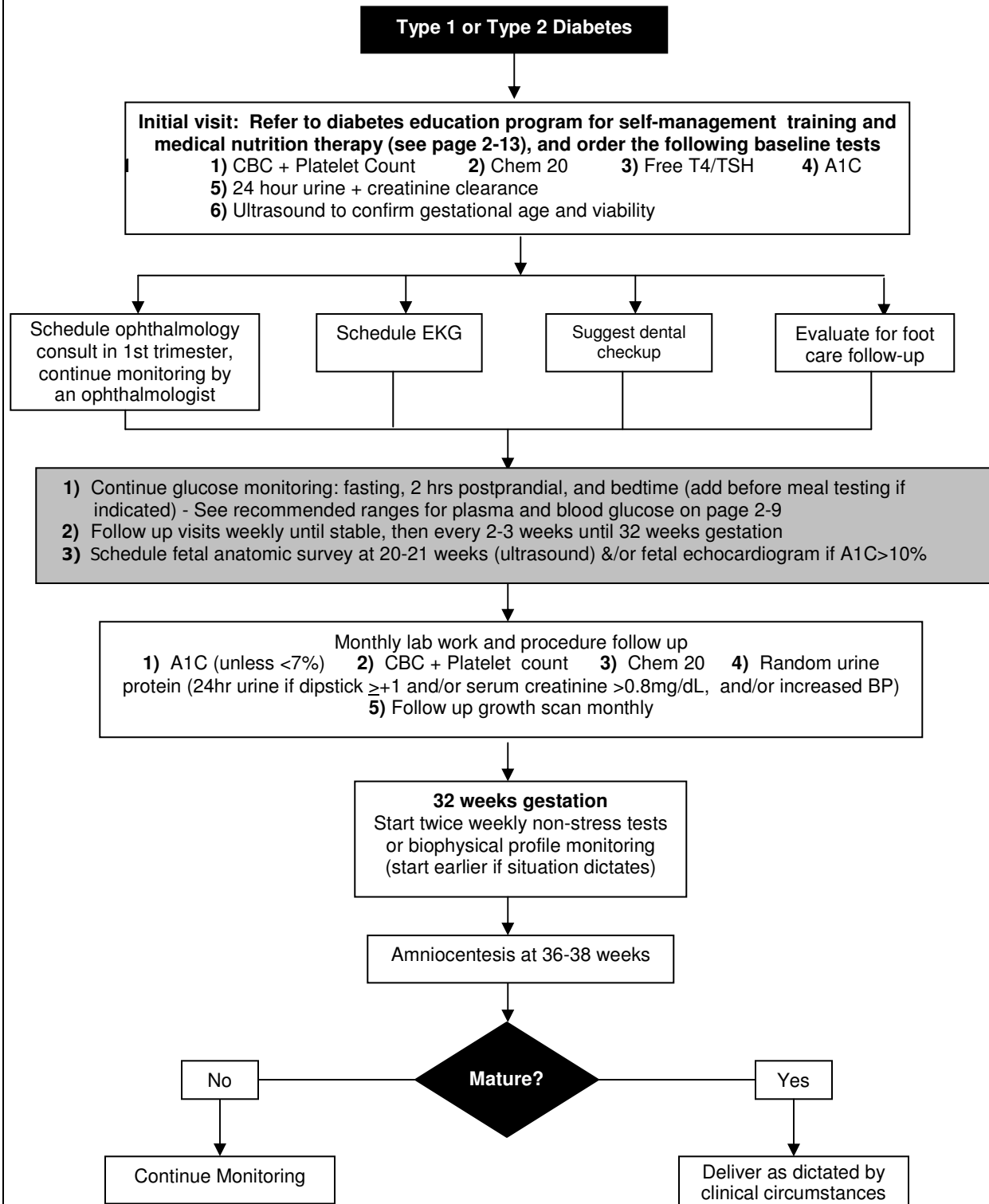
Achievement of glucose control depends on patient motivation, an understanding of the complex interactions between food, insulin, and exercise, as well as support from the health care team, including the obstetrician or perinatologist, registered dietitian, and diabetes educator. Rapid-acting insulins (short- and ultra-short-acting) are administered before meals to reduce postprandial glucose elevation associated with eating and allow utilization of consumed foods. Long-acting insulins are used to restrain hepatic glucose production between meals and in the fasting state. Long-acting insulins, NPH (twice daily) or glargine (once daily) may be administered.

Maintaining glucose levels as close to normal as possible is the goal of therapy, including the following targets:

	Self-Monitored Blood Glucose (mg/dL)
Fasting/before meals	≤ 95
1 hour after meals	≤ 140
2 hours after meals	≤ 120

PREGNANCY WITH PRE-EXISTING TYPE 1 AND TYPE 2 DIABETES

MANAGEMENT AND MONITORING



LANTUS INFORMED CONSENT FORM

You are pregnant and are being treated for diabetes. It is very important to keep your blood sugar levels as normal as possible in order to prevent serious complications to both you and your unborn baby.

There are no FDA “approved” medicines to control blood glucose levels during pregnancy; however, the usual treatment is to use human insulin products. But over the past several years, newer man-made insulins have become available and are being safely used in women with diabetes who are pregnant.

Your doctor feels that you would benefit from using insulin glargine (**Lantus**[®]). At the present time, there are no reports that show Lantus[®] causes problems with unborn babies. Because there have been only limited reports on the use of Lantus[®] there still may be a risk of substantial or serious harm. It is known that high blood sugars are a major risk to your baby. Your doctor believes that using Lantus[®] will reduce this risk.

My questions about the use of Lantus[®] have been answered satisfactorily, and I, (print name) _____, understand and accept the risks of possible substantial and serious harm and agree to use Lantus[®] during pregnancy.

Patient Signature: _____ Date: _____

Witness Signature: _____ Date: _____

FORMA DE CONSENTIMIENTO PARA EL LANTUS

Usted está embarazada y recibe tratamiento para la diabetes. Es muy importante de mantener los niveles de azúcar en la sangre lo más normal posible para prevenir complicaciones en usted y su bebé.

La FDA (Administración de drogas y alimentos de los Estados Unidos) no ha aprobado ningún medicamento para controlar el azúcar durante el embarazo, sin embargo el tratamiento usual consiste en inyectarse productos de insulina humana. Con el pasar de los años se han producido nuevas formas de insulina que son administradas sin problemas en mujeres embarazadas con diabetes.

Su médico opina que usted se beneficiaría usando glargine (**Lantus**[®]). Hasta el momento, no hay reportes que indican que Lantus[®] causa problemas con el bebé que usted esta esperando, pero debido a que se han realizado estudios limitados aun puede haber un riesgo sustancial o un daño serio. La alta cantidad de azúcar en la sangre constituye un gran riesgo para la salud de su bebé. Su médico cree que usando glargine (Lantus[®]) reduciría ese riesgo.

Mis preguntas acerca del uso de (Lantus[®]) ha sido respondida satisfactoriamente, Yo, _____, entiendo y acepto el posible riesgo sustancial y el serio daño y estoy de acuerdo de usar Lantus[®] durante el embarazo.

Firma de la Paciente _____ Fecha: _____

Firma del Testigo _____ Fecha: _____

GLYBURIDE INFORMED CONSENT FORM

You are pregnant and are being treated for diabetes. It is very important to keep your blood sugar levels as normal as possible in order to prevent serious complications to both you and your unborn baby.

There are no FDA “approved” medicines to control blood glucose levels during pregnancy; however, the usual treatment is to use human insulin products. But over the past several years, studies have shown that **glyburide** can be safely used in women with diabetes who are pregnant.

Your doctor feels that you would benefit from using glyburide. At the present time, there are no reports that show glyburide causes problems with unborn babies. Because there have been only limited studies there still may be a risk of substantial or serious harm. High blood sugars are a major risk to your baby. Your doctor believes that using glyburide will reduce this risk.

My questions about the use of glyburide have been answered satisfactorily, and I, (print name) _____, understand and accept the risks of possible substantial and serious harm and agree to use glyburide during pregnancy.

Patient Signature: _____ Date: _____

Witness Signature: _____ Date: _____

FORMA DE CONSENTIMIENTO PARA EL GLYBURIDE

Usted está embarazada y recibe tratamiento para la diabetes. Es muy importante de mantener los niveles de azúcar en la sangre lo más normal posible para prevenir complicaciones en usted y su bebé.

La FDA (Administración de drogas y alimentos de los Estados Unidos) no ha aprobado ningún medicamento para controlar el azúcar durante el embarazo, sin embargo el tratamiento usual consiste en inyectarse productos de insulina humana. Con el pasar de los años estudios han demostrado que **glyburide** puede ser seguro cuando es usado en mujeres embarazadas con diabetes.

Su médico opina que usted se beneficiaría usando glyburide. Hasta el momento, no hay reportes que indican que glyburide causa problemas con el bebé que usted está esperando, pero debido a que se han realizado estudios limitados aun puede haber un riesgo sustancial o un daño serio. La alta cantidad de azúcar en la sangre constituye un gran riesgo para la salud de su bebé. Su médico cree que usando glyburide reduciría ese riesgo.

Mis preguntas acerca del uso de glyburide ha sido respondida satisfactoriamente, Yo, _____, entiendo y acepto el posible riesgo sustancial y el serio daño y estoy de acuerdo de usar glyburide durante el embarazo..

Firma de la Paciente _____ Fecha: _____

Firma del Testigo _____ *Fecha:* _____

APPROVED DIABETES EDUCATION PROGRAMS

Diabetes self-management training (DSMT) is generally conducted in a hospital or clinic with group and individual instruction. DSMT consists of education from a ‘team’ of individuals from various disciplines. The ‘team’ may include nurses, dietitians, doctors, pharmacists, exercise physiologists, health educators, counselors and other knowledgeable health care professionals. An individualized program is based on an initial assessment, and may cover any or all of these topics depending on the needs of the patient:

- The diabetes disease process and treatment options
- Incorporating physical activity into a lifestyle
- Monitoring blood glucose, urine ketones (when appropriate), and using results to improve control
- Preventing, detecting and treating acute complications
- Goal setting to promote health, and solve problems of daily living
- Incorporating appropriate nutritional management
- Utilizing medications for therapeutic effectiveness
- Integrating psychosocial adjustment to daily life
- Promoting preconception care, management of pregnancy, and gestational diabetes
- Preventing (through risk reduction behavior), detecting, and treating chronic complications

For reimbursement, most health insurance plans require DSMT programs to meet the criteria set by the Diabetes Education and Recognition Program of the American Diabetes Association (ADA) or the Utah Diabetes Prevention and Control Program (DPCP). Check with health plans to assure eligibility for reimbursement; some providers have approval pending.

Note: MEDICARE REIMBURSES ONLY FOR DSMT PROVIDED IN ADA APPROVED PROGRAMS.

Salt Lake County

Alta View Hospital Sandy, Utah 84070	801-314-2894	ADA	Pioneer Valley Hospital West Valley City, Utah 84120	800-423-0871	ADA
Bryner Clinic Salt Lake City, Utah 84102	801-519-7192	ADA	Primary Children's at Utah Diabetes Center Salt Lake City, Utah 84113	801-581-7761	DPCP
Cottonwood Hospital Murray, Utah 84106	801-314-2894	ADA	Sandy Health Center (IHC) Salt Lake City, Utah 84094	801-501-2100	ADA
Cottonwood Family Practice Salt Lake City, Utah 84121	801-262-3443	ADA	St. Marks Hospital Salt Lake City, Utah 84124	801-268-7358	ADA
Cottonwood Internal Medicine Murray, Utah 84107	801-314-4300	ADA	Salt Lake Clinic Salt Lake City, Utah 84102	801-535-8117	ADA
Holladay Health Clinic Salt Lake City, Utah 84124	801-314-2894	ADA	Salt Lake Regional Hospital Salt Lake City, Utah 84102	800-423-0871	ADA
Jordan Valley Hospital West Jordan, Utah 84088	800-423-0871	ADA	Taylorsville Health Center (IHC) Taylorsville, Utah 84118	801-840-2100	ADA
LDS Hospital Salt Lake City, Utah 84143	801-314-2894	ADA	University of Utah- Department of Physical Therapy Salt lake City, Utah 84108	801-581-6696	DPCP
Medical Tower Family Practice Murray, Utah 84107	801-314-4266	ADA	Utah Diabetes Center, University of Utah Salt Lake City, Utah 84108	801-581-7761	ADA
Medical Tower Specialty Clinic Murray, Utah 8407	801-314-4890	ADA	West Jordan Health Center (IHC) West Jordan, Utah 84088	801-256-6343	ADA
Memorial Medical Center Salt Lake City, Utah 84105	801-461-7979	ADA			

UTAH DIABETES PRACTICE RECOMMENDATIONS – Diabetes in Pregnancy

APPROVED DIABETES EDUCATION PROGRAMS (continued)

Utah and Wasatch Counties

American Fork Hospital American Fork Utah, 84004	801-763-3471	ADA	Utah Valley Regional Medical Center Provo, Utah 84605	801-357-7546	ADA
Mountain View Hospital Payson, Utah 84651	801-465-7045	ADA	Heber Valley Medical Center Heber City, Utah 84032	435-654-2500	ADA

Northern Utah – Box Elder, Cache, Davis, and Weber Counties

Brigham City Hospital Brigham City, Utah 84302	435-734-4339	ADA	Bountiful Health Center (IHC) Bountiful, Utah 84010	801-294-1000	ADA
Bear River Valley Hospital Tremonton, Utah 84337	435-257-744	ADA	Davis Hospital/ Medical Center Layton, Utah 84041	800-423-0871	ADA
Budge Clinic Logan, Utah 84341	435-792-1707	ADA	Lakeview Hospital Bountiful, Utah 84010	801-299-2470	ADA
Logan Regional Hospital Logan, Utah 84341	435-716-5439	ADA	Endocrine and Diabetes Clinic (McKay-Dee) Ogden, Utah 84403	801-387-7919	ADA
			McKay Dee Outpatient Diabetes Education Ogden, Utah 84403	801-387-7539	ADA

Central and Southwestern Utah

Central Valley Medical Center Nephi, Utah 84648	435-623-3092	DPCP	Garfield Memorial Hospital Panguitch, Utah 84759	435-676-8811	ADA
Gunnison Valley Hospital Gunnison, Utah 84634	435-528-3955	DPCP	Dixie Regional Medical Center St. George, Utah 84770	435-688-5085	ADA
Sanpete Valley Hospital Mt. Pleasant, Utah 84647	435-462-2441	ADA	Valley View Medical Center Cedar City, Utah 84720	435-868-5000	ADA

Uintah Basin and Southeastern Utah

Castleview Hospital Price, Utah 84501	435-636-4822	DPCP	Blanding Family Practice Blanding Utah 84511	435-678-3601	DPCP
Ashley Valley Medical Center Vernal, Utah 84078	435-789-3342 X 174	ADA	Allen Memorial Hospital Moab, Utah 84532	435-259-7191	DPCP

Additional Diabetes Self-Management Training Programs

In addition to the DSMT programs locations listed above, some providers of this service have not yet been formally approved. These programs generally fit into one of the following categories:

Satellite locations of certified programs using the same instructors and curricula
 Providers who have not yet applied for State or ADA approval
 Providers who have not been able to comply with all formal requirements due to staffing shortages
 Programs that have contractual arrangements with third party payers and are able to secure reimbursement without certification

Since some health insurance plans will not reimburse for DSMT, patients should verify coverage when planning to receive services through any DSMT provider; however, the programs listed below may be more likely to experience reimbursement difficulties than those listed above because they lack formal approval.

Dixie Regional Medical Center at River Road Clinic St. George, Utah 84770 435-688-6200 Sevier Valley Hospital	Mountain West Medical Center - Diabetes Education Tooele, Utah 84074 435-882-4163
--	--

In addition to the education programs listed here, all Utah Community Health Centers not listed above participate in a National Diabetes Collaborative and have training in diabetes treatment and education.

If they have not been formally approved, the experience and training for diabetes educational services in those not listed is subject to fluctuations depending on staff availability and experience. Please call to ascertain the availability of self-management training in advance of referral.

BIBLIOGRAPHY

The following references were used in preparing the Utah Diabetes Practice Recommendations - Diabetes in Pregnancy, 2005.

American Diabetes Association. Standards of Medical Care. Diabetes Care 2005; 28 (Suppl 1):S7

American Diabetes Association. Standards of Medical Care. Diabetes Care 2005; 28 (Suppl 1): S23-24

American Diabetes Association. Preconception Care of Women with Diabetes. Diabetes Care 2004; 27 (Suppl 1):S76-78

American Diabetes Association. Gestational Diabetes Mellitus. Diabetes Care 2004; 27 (Suppl 1):S88-90

American College of Obstetricians and Gynecologists, Committee on Practice Bulletins-Obstetrics 2001, Coustan, DR. Gestational Diabetes ACOG Practice Bulletin #30 2001; Washington: American College of Obstetricians and Gynecologists

Bottalico, JN; Diabetes and Pregnancy: Not Just a Problem for Obstetricians. Diabetes Newsletter, University of Medicine and Dentistry of New Jersey

Bureau of Health Promotion, Utah Department of Health 2004; An Overview of Gestational Diabetes in Utah, Salt Lake City, UT

Dabelea, D; Snell-Bergeon, J; et al. Increasing Prevalence of Gestational Diabetes Mellitus (GDM) Over Time and by Birth Cohort. Diabetes Care 2005 28:579-84

Diabetes Coalition of California, California Diabetes Prevention and Control Program 2003-2004; Algorithm for Gestational Diabetes Screening, Diagnosis and Management

Gabbe, SG; Graves, CR. Management of Diabetes Mellitus Complicating Pregnancy. Obstetrics and Gynecology 2003; 102:857-68

Jovanovic, L; Never Say Never in Medicine. Diabetes Care 2004; 27:S610-11

Kremer, CJ; Duff, P; Glyburide for the Treatment of Gestational Diabetes. American Journal of Obstetrics and Gynecology 2004; 190:1438-39

Langer, O; Conway, DL; et al. A Comparison of Glyburide and Insulin in Women With Gestational Diabetes Mellitus. New England Journal of Medicine 2000; 343:1134-38

Schmidt, MI; Duncan, BB; et al. Gestational Diabetes Mellitus Diagnosed With a 2-h 75-g Oral Glucose Tolerance Test and Adverse Pregnancy Outcomes. Diabetes Care 2001; 24:1151-55

Tellarigo, L; Giampietro, O; Relation of Glucose Tolerance To Complications of Pregnancy in Non-diabetic Women. New England Journal of Medicine 1986; 989-92

US Preventive Services Task Force; Screening for Gestational Diabetes Mellitus: Recommendations and Rationale. Obstetrics and Gynecology 2003; 101(2):393-94

Crowther, CA; Hiller, JE; Effect of Treatment of Gestational Diabetes Mellitus on Pregnancy Outcomes. New England Journal of Medicine 2005; 352(24):2477-85